



# **Federal Networking and Information Technology R&D**

**HCI&IM CG-Sponsored  
National Workshop on Information Integration  
October 26, 2006**

**Philadelphia, PA**

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**Director**

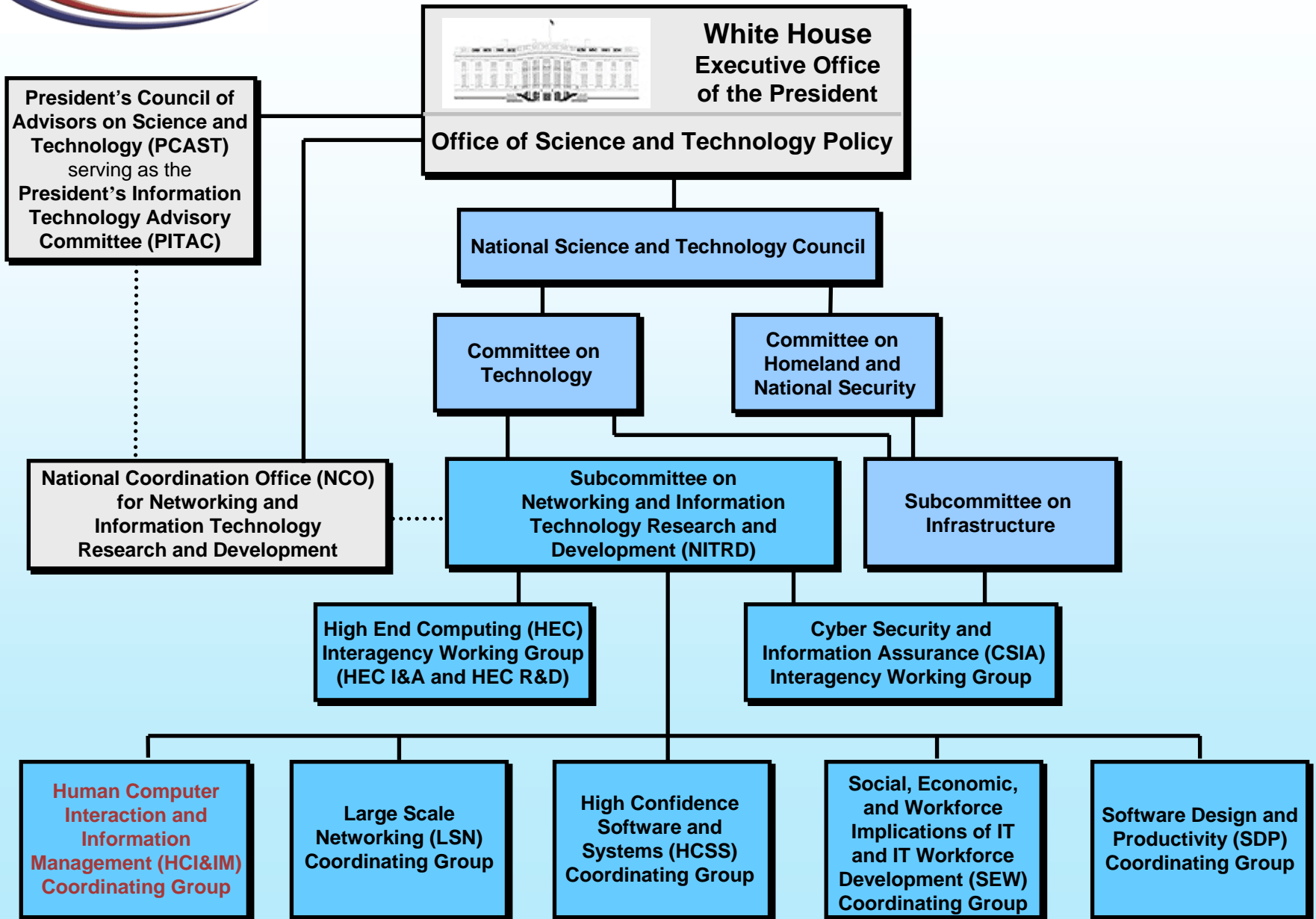
**National Coordination Office for  
Networking and Information Technology  
Research and Development (NCO/NITRD)**



# Overview of the NITRD Program

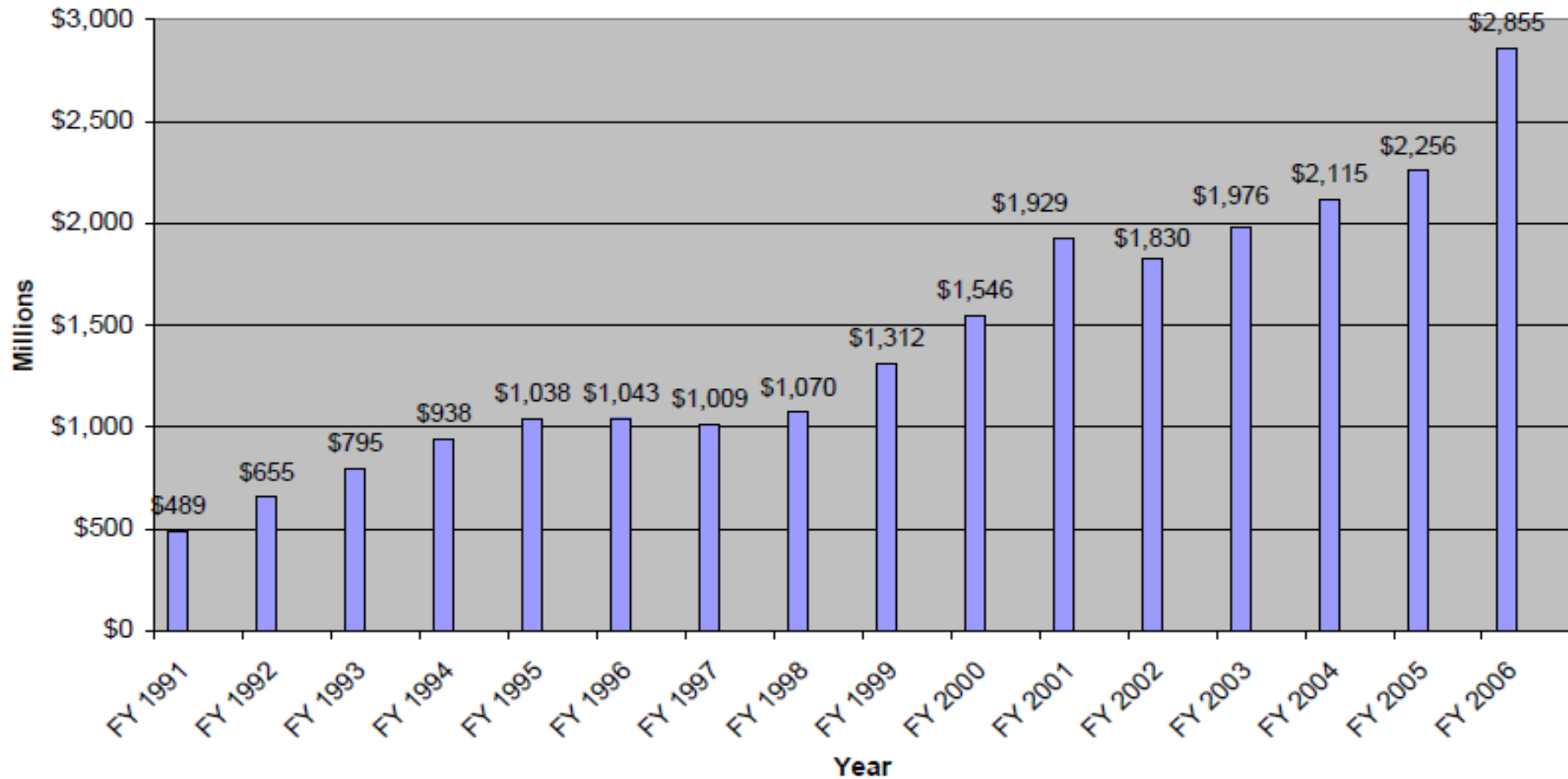
- Program budget of \$3.1 billion proposed for FY 2007
- The NITRD Program is organized into technical domains called Program Component Areas (PCAs)
- The activities in the PCAs are coordinated through the NITRD Subcommittee of the National Science and Technology Council (NSTC)
  - Has two Interagency Working Groups (IWGs) and five Coordinating Groups (CGs)
  - Representatives from
    - 14 program member agencies
    - White House Office of Management and Budget (OMB)
    - White House Office of Science and Technology Policy (OSTP)
    - NITRD National Coordination Office

# NITRD Program Coordination Structure





# NITRD Program Budget History



Source: Annual Supplements to the President's Budget



## **President's American Competitiveness Initiative (ACI)**

- **Calls for a doubling over 10 years of the investment in three Federal agencies — NSF, DOE/SC, and NIST — that support basic research programs in the physical sciences and engineering**
- **All three are NITRD Program member agencies; received 2007 budget increases that exceed the percentage increase in the overall NITRD budget**
  - NSF: 12% increase
  - DOE/SC: 35% increase
  - NIST: 10% increase
  - Collective increase for ACI agencies is \$186 million (17% above 2006 estimates)
  - Increase in ACI agency budgets accounts for over 85% of the overall NITRD Program budget increase for 2007
- **These agencies' physical sciences and engineering R&D will play a key role in generating technical advances in IT systems**



## **NCO/NITRD Objectives**

- **The National Coordination Office (NCO) for NITRD supports the Program's multi-agency technical activities.**
- **The NCO's objectives are:**
  - To support NITRD-related policy making in the White House Office of Science and Technology Policy (OSTP)
  - To serve as the Federal focal point for interagency technical planning, budget planning, and coordination for the Federal NITRD Program
  - To serve as a source of timely, high-quality, technically accurate, in-depth information on accomplishments, new directions, and critical challenges relevant to the NITRD Program



## **Collaborative Vision for the NITRD Program**

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- **Increased NITRD interagency R&D coordination and planning activities**
- **Increased conferences, workshops, and meetings that aid in identifying NITRD needs in strategic areas that are aligned with and benefit Federal missions and national priorities**
- **Increased NITRD agency interaction and outreach with non-governmental experts to help identify and implement NITRD Program priorities**

## ■ HCI&IM PCA Definition

- HCI&IM R&D aims to increase the benefit of computer technologies to humans, particularly the science and engineering R&D community.
- HCI&IM R&D invests in technologies for mapping human knowledge into computing systems, communications networks, and information systems and back to human beings, for human analysis, understanding, and use.
- R&D areas include: cognitive systems, data analysis in fields such as human health and the environment, information integration, multimodal and automated language translation, robotics, and user interaction technologies



- **HCI&IM agencies**
  - AHRQ, DARPA, DHS, EPA, NARA, NASA, NIH, NIST, NOAA, NSF, ONR, OSD
- **HCI&IM Participating Agencies**
  - DTO, GSA, VA
- **HCI&IM is the second-largest PCA by budget**
  - Over \$800M in R&D investments

- **Key strategic priorities to advance national priorities**
  - Information accessibility, integration, mitigation, and management
    - Federal information management architecture test beds
    - Long-term preservation
  - Multimodal devices, interfaces, and data
  - Systems that know what they are doing – intelligent, adaptive, autonomous, self-healing
  - Modeling and visualization technologies and tools

- **Fundamental R&D applicable across critical domains of multiple national priorities**
  - Large-scale scientific research
  - National defense
  - Homeland security
  - Air-traffic control
  - Emergency planning and response
  - Health care
  - Space exploration
  - Weather forecasting
  - Climate prediction

- **Complements the work of other NITRD areas by focusing on the scientific foundations needed for increasing the benefit of computer technologies to humans. Related activities include:**
  - HEC: Advanced platforms and software for file systems I/O and storage, high-end modeling and simulation
  - LSN: Next-generation network technologies and architectures
  - CSIA: Security technologies to safeguard systems and information
  - HCSS: Software and systems for assured reliability, survivability, and safety in mission- and life-critical applications (e.g., aviation and air traffic control, critical infrastructures, medical devices)
  - SEW: Interactions between humans and IT devices and capabilities, and the role of innovative IT applications in education and training.



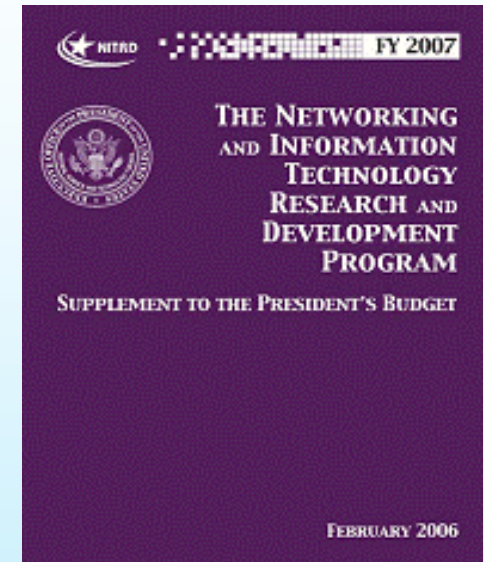
# **The Information Integration Workshop's Importance to the NITRD Program**

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- **The HCI&IM Information Integration Workshop is an excellent example of NITRD coordination at work**
  - The HCI&IM CG is taking on the task of identifying the R&D challenges associated with advancing IT to better understand, use, access, and analyze increasingly complex, heterogeneous, and disparate modalities of information.
  - Your presence here today shows your commitment to contributing to a collaborative effort of the Federal, academic, and industry research communities, to identify the IT technical challenges and to develop an R&D roadmap for future research in this important area.

## Comments or Questions?

- More detailed information on the NITRD Program is available in the *FY 2007 Supplement to the President's Budget for the NITRD Program*
- To download a copy of the Budget Supplement or any of our other publications, please visit:  
<http://www.nitrd.gov/>



# **Backup Slides**

## **NITRD Program Background and Overview**



# Overview of the NITRD Program

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- **Statutory basis for the NITRD Program**
  - High-Performance Computing Act of 1991
  - Next Generation Internet Research Act of 1998
- **One of the few formal interagency R&D efforts – regarded as a successful model of Federal interagency coordination**



## **NITRD Member Agencies**

- **Agency for Healthcare Research and Quality (AHRQ)**
- **Defense Advanced Research Projects Agency (DARPA)**
- **Department of Homeland Security (DHS)**
- **Department of Energy/National Nuclear Security Administration (DOE/NNSA)**
- **Department of Energy/Office of Science (DOE/SC)**
- **Environmental Protection Agency (EPA)**
- **National Archives and Records Administration (NARA)**
- **National Aeronautics and Space Administration (NASA)**
- **National Institutes of Health (NIH)**
- **National Institute of Standards and Technology (NIST)**
- **National Oceanic and Atmospheric Administration (NOAA)**
- **National Security Agency (NSA)**
- **National Science Foundation (NSF)**
- **Office of the Secretary of Defense (OSD) and DoD Service Research Organizations**



# **NITRD Participating Agencies**

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- **Central Intelligence Agency (CIA)**
- **Department of Justice (DOJ)**
- **Department of State (DOS)**
- **Department of Transportation (DOT)**
- **Department of the Treasury (Treas)**
- **Department of Veterans Affairs (VA)**
- **Federal Aviation Administration (FAA)**
- **Food and Drug Administration (FDA)**
- **General Services Administration (GSA)**
- **Technical Support Working Group (TSWG)**
- **United States Geological Survey (USGS)**

# Scope of NITRD Program

- **Eight major R&D areas, called Program Component Areas (PCAs):**
  - High End Computing Infrastructure and Applications (HEC I&A)
  - High End Computing Research and Development (HEC R&D)
  - Cyber Security and Information Assurance (CSIA)
  - Human-Computer Interaction and Information Management (HCI&IM)
  - Large Scale Networking (LSN)
  - High Confidence Software and Systems (HCSS)
  - Social, Economic and Workforce Implications of IT (SEW)
  - Software Design and Productivity (SDP)
- **Broad participation: R&D conducted by thousands of researchers spanning government laboratories, national laboratories, universities, and private-sector partnerships**
- **Technical Leadership: NITRD efforts shape national R&D agendas**

**HEC I&A**

**HEC R&D**

**CSIA**

**HCI&IM**

**LSN**

**HCSS**

**SEW**

**SDP**

- **The NITRD Subcommittee coordinates broad goals, policies, and directions for the Program**
  - Subcommittee members are senior NITRD agency managers
  - Serves as liaison with White House officials
  - Oversees preparation of annual NITRD Supplement to the President's Budget

**HEC I&A**

**HEC R&D**

**CSIA**

**HCI&IM**

**LSN**

**HCSS**

**SEW**

**SDP**

- **In each PCA, agency managers participate in an Interagency Working Group (IWG) or a Coordinating Group (CG)**
  - IWGs and CGs, co-chaired by agency reps, meet monthly to:
    - Develop joint or multi-agency R&D efforts
    - Exchange information
    - Coordinate R&D plans across agencies to avoid duplication, leverage investments, maximize potential for widely useful results
    - Cooperate on multi-agency workshops, program and grant reviews, development of technical publications
  - Many Federal agencies, not just those in the NITRD Program, participate in IWG and CG activities
  - IWG, CG co-chairs meet as a group to discuss cross-cutting issues